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ABSTRACT

A project was conducted to (1) determine the potential for serving more and a greater variety of students in New Hampshire's secondary vocational centers through individualized instruction techniques, (2) clarify associated terminology and concepts, (3) study teacher, student, and administrator attitudes towards individualized instruction, and (4) produce a guide to individualizing instruction. Six model sites were selected and aided to organize and strengthen their individualized delivery systems via on-site visitations, instructor contracts, instructional materials, support, and consultations with project staff. An identification system which allows the user to determine the current level of individualizing was employed and validated. A handbook on individualized instruction (including the identification system) was developed. Trained teachers and model sites were used to assist and demonstrate the feasibility of alternative individualized instructional approaches. Clarification of terminology was accomplished, and the handbook and identification system were considered useful instruments in establishing or improving vocational individualized instruction. Data relating to serving more and an increased variety of students was not conclusive. (The third-party evaluation report is also included in this document.) (Author/BM)

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FINAL REPORT

Project No. 498AH60041

Grant No. GOO7603809

AAIVE Project
Alternative Approaches to Individualization in Vocational Education

by

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Vocational Curriculum Research Office
Keene State College
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Bureau of Occupational and Adult Education

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PROJECT DIRECTOR'S REPORT

by

John R. Faust

INTRODUCTION AND BACKGROUND

The Alternative Approaches to Individualization in Vocational Education (AAIVE) project was originally conceived out of concerns expressed by the Research Coordinating Unit (RCU) Director of the Vocational-Technical Division of the New Hampshire State Department of Education.

In 1976, when the proposal for the program was first developed, New Hampshire was in the early stages of implementing a legislative act that specified the development of twenty earlier named vocational education centers throughout the State. These centers are to provide the State's secondary school youth with job entry level skills in a variety of occupational program offerings.

Implementation of this plan, coupled with the seven State post-secondary vocational technical colleges constructed during the 1960s, was and still is thought to be the best means of providing the State's skilled manpower needs in the future.

Recognizing the imminent development of this plan, the New Hampshire RCU, as early as 1973, began to sponsor research and exemplary efforts in the area of curriculum needs. Instruction prior to these efforts was primarily what is referred to as a "teacher-centered, purveyor of knowledge" approach.

What was needed were alternative models that would cause vocational instructors to analyze the potential for improved quality of their instructional programs. Through this analysis, teachers might find new means of increasing the number and type of students to be served in their programs.

Many of the model programs reviewed (and eventually supported) from 1973 to 1976 by the State RCU involved alternative approaches to individu-

alizing instruction. Instructors implementing these models were seeking a way of "breaking out" of the "purveyor of knowledge" mode of instruction and into the "student-centered" approach where the teacher's role becomes more that of a manager of learning.

The results of these early efforts at student-centered individualized learning, when compared to the tried or proven teacher-centered approach, did not always show extensive improvement.

It was, however, observed that instructors and students who participated in these new approaches for one year or more had a renewed and increased sense of interest in teaching and learning.

Most of the problems these model programs faced were lack of organization, lack of teacher preparation time, teacher-dependent students and, in some cases, school authorities and parents who didn't understand the changes the instructors were trying to produce.

In summary, the model programs using student-centered individualized instruction had problems. These problems, however, had solutions; and the programs evidenced potential for serving a greater variety and number of students in a more exciting style than the traditional teacher-centered approach. Did they or didn't they? This was the question arising from observation of these early model programs.

In early 1976, when the Bureau of Occupational and Adult Education at the U.S. Office of Education called for research proposals, the New Hampshire RCU was looking closely at the potential for individualized instruction.

If the New Hampshire vocational educators could have the opportunity to view well-organized quality programs using alternative approaches to individualized instruction, and if such programs were effective in broadening the potential for serving a greater variety and number of students Statewide,

this information would prove useful in the future development of the twenty secondary vocational education centers.

Early in 1976, State RCU Director, Dr. Lila Murphy, Associate Dean of Keene State College, Dr. Richard Gustafson, and Mr. John R. Faust, former Curriculum Specialist with the New England Resource Center for Occupational Education, met to review the potential for individualized instruction in New Hampshire vocational programs.

A project proposal was written naming Keene State College as the sponsor. Identifying six vocational programs using alternative approaches to individualized instruction, the project proposed to study each program to determine the implications each of these methods might have for future programs.

Five of the six sites selected had previously been awarded a minimum of one year of developmental funds through the State RCU exemplary projects monies.

In selecting the sites for participation in the AAIVE project, a careful review of all exemplary-funded programs from 1973-1976 was made by the RCU. Eventually, sites at the secondary vocational centers in Dover, Nashua, Plymouth, Somersworth and Salem and the New Hampshire Vocational Technical College in Manchester were selected and invited to participate, subject to project funding.

The proposal stated that each site would be aided in further organizing and strengthening its efforts to become a true model and achieve exemplary status through the support provided by the project and its resources. It was further stated that evidence of the quality of instruction, number of students involved, and the flexibility of student types would be sought in these programs. Finally, the project proposed to review attitudes of program teachers to determine, if possible, the reasons for their desire to

develop their alternative approaches to instruction.

Further, if the results showed positive implications for these approaches, the existing vocational technical college system within the State could study the ramifications of adapting these alternatives to the post-secondary level of instruction.

During the early summer of 1976, Keene State College was notified by the U.S. Office of Education that funding for the AAIVE project would be granted. John R. Faust, who had aided in the original proposal, was hired as Director to provide leadership to the project. The project, based at Keene State College, began on August 16, 1976 and ended on June 30, 1978.

ORGANIZING AND STRENGTHENING OF PARTICIPATING PROGRAMS

As stated in the introduction, five of the six programs selected for participation in the AAIVE project had been initiated one year, or in some cases two years, earlier. These five programs were developed either as individual exemplary grants or as a component of an exemplary grant awarded to a vocational center.

Within the framework of these exemplary proposals, each site was able to design and implement its alternative methods or strategies for individualized instruction.

The sixth selected site, located at the post-secondary Vocational Technical College in Manchester, had not been part of an exemplary project; however, the project director's previous status as the Instructional Dean at the College provided familiarity with the alternative individualized approach being developed by the program instructors.

Early in September of 1976, the project director visited each site to determine the current status of program development. Each site had developed an alternative method of instructional delivery. None of the sites, however, had been able to assemble a fully developed instructional system.

Components such a identifying occupations in a cluster or job family, task analysis, a quality evaluation scheme or an adequate recordkeeping process were missing or incomplete. Two programs were found to have incomplete or unmeasurable instructional objectives. In summary, instructors in the selected programs had changed the way instruction was delivered without carefully analyzing the occupational needs of students or how to measure instructional progress.

Each site was unique and at a different level of creating an instructional system. As the project director assessed the problems related by the instructors in their initial efforts to develop their alternative approaches, it appeared evident that a majority of them could be solved by assembling all the elements of a good instructional system. Coupling these tasks with the alternative delivery system being utilized could produce a truly model program at each site.

As a result of the original visitation, the project director developed an organizing and strengthening task list which was sent to participating instructors. As part of a project meeting with participants held in early fall of 1976, the task lists were reviewed and an agreement was reached with each site instructor(s) regarding the instructional components that would be developed with project support.

Names of the centers, programs and instructors involved in the AAIVE project are listed here. Provided also is a brief statement describing the alternative approaches used to deliver individualized instruction.

School: Dover Vocational Center
Program: Food Service
Instructor: Douglas Coons

A well-defined task analysis related to the occupational cluster is reflected in a series of individualized learning packages (ILPs). Each package provides directions to produce a finished product. An evaluation scheme, designed to involve students in determining quality standards, is also part of the program.

School: Nashua Vocational Center
Program: Electronics
Instructor: Robert Reynolds

Student skill development is accomplished through a series of instructor-developed, self-instructional written modules. A series of core skill modules leads students to specialized modules in Computers, Communications or Electro-Mechanical Devices. The modules are designed to provide for a self-paced, continuous-progress learning process.

School: New Hampshire Vocational Technical College - Manchester
Program: Industrial Welding
Instructor: Mel Ciulla

Welding laboratory skill development is designed to be self-paced, continuous progress. Instructional sheets containing welding skill processes are used by students. Competency checklists are used by the instructor to record student progress. Recordkeeping is maintained primarily by students. Students have access to the lab on an open basis.

School: Plymouth Vocational Center
Program: Power Mechanics
Instructor: Tim Peters

A series of auto-tutorial, commercially-purchased instructional modules are used as the basis for instruction. The machines and the software are used in a laboratory environment, providing students with visual and auditory instruction for the hands-on occupational skills development required.

School: Salem Vocational Center
Program: Child Care
Instructor: Nancy Chase, Lori Leone

A full-time day care program is operated within the school, providing students with daily hands-on experience with pre-school children. The Child Care Center is designed with 13 learning stations. Students accomplish instructional objectives individually while working with pre-school children in each of the learning stations. A well-equipped Resource Center in a separate room supplements the laboratory experience.

School: Somersworth Vocational Center
Program: Community-Based Multi-Occupational
Director: Susan Klaiber

The community business and industrial employers serve as instructors to interested students. Students obtain skills in the actual occupational environment. Skills are determined by a detailed task analysis for the occupation. Student progress is continuously monitored by school personnel.

The following cross-referenced chart describes the organizing and strengthening tasks accomplished by the project director and participating instructors during the project.

Instructors have stated that in the two years of participation in the AAIVE project, each program has been able to progress considerably further than would have been possible without project involvement. The establishment of a time- and performance-based process for organizing and strengthening

activities has encouraged instructors to "get it accomplished" much sooner than without an organized plan.

At the close of the project in June, 1978, all participants had documentary evidence of each component of an instructional system in place. Future efforts will involve validation of these components by each program's advisory committee and, where necessary, revision.

TASKS	Dover	Nashua	Manchester N.H.V.T.C.	Plymouth	Salem	Somersworth
1. Conduct ERIC Search for pertinent individualized instruction materials.	X	X	X	X	X	X
2. Apprise instructor of relevant commercial aid and prepared materials.	X			X	X	
3. Establish occupation (Job Family) cluster.				X	X	
4. Critique existing instructional objectives and task statements.	X	X	X		X	X
5. Develop task statements for cluster.				X	X	X
6. Aid in writing objectives.	X	X	X	X	X	X
7. Project provides limited funds for purchase of software.		X	X	X	X	
8. Instructor prepares list of media/software needs.		X	X	X	X	
9. Review and recommend contract approach for course.			X		X	
10. Suggest classroom management techniques.			X	X		
11. Establish criterion-referenced testing system.	X	X		X		
12. Establish reliable recordkeeping system.	X	X	X	X	X	
13. Establish reliable evaluation system.	X	X	X	X	X	
14. Establish complete units of instruction (with skill concept, interim and terminal objectives, resources, student activities, recordkeeping and evaluation.			X	X	X	
15. Project arranges for clerical help preparing additional units.		X	X	X	X	
16. Consultant selected for technical evaluation of modules.		X				
17, Establish method of student follow-up after graduation.	X				X	
18. Develop and/or utilize craft advisory committees.		X		X	X	
19. Instructors maintain evaluator's handbook.	X	X	X	X	X	X

EVALUATING THE ORGANIZING AND STRENGTHENING

Documentation of the completed tasks was maintained throughout the project. Separate files for each project site were maintained. These files contained all correspondence, site visitation reports and materials development accomplished during the term of the project.

The project director maintained a daily log of all major project activities.

Due to the evaluator's office being located in the same building as the project, a high degree of cooperation between the project staff and the evaluator was possible.

Each request by the evaluator for documentation of any site activity at any time was easily satisfied by the project staff. A total review of all project records was accomplished for an interim evaluation report in January, 1977, and again at the conclusion of the project in June, 1978.

With few exceptions, organizing and strengthening tasks originally negotiated with the site teachers were accomplished. The exceptions were tasks that were originally thought to be important, but as the project proceeded were later found to be insignificant.

A few identified tasks could be accomplished only through cooperation of people advising participating instructors (i.e., craft advisory committee members or supervisors). In only one or two cases did this circumstance prevent accomplishment of the tasks. The task completion continued through the duration of the project. During the summer of 1977, each site participant negotiated a performance-based work agreement relative to some of the tasks. Forty hours or more were devoted to accomplishing the tasks during the summer, in addition to the extra hours demanded during the school

year.

The completion of the task lists at the conclusion of the project produced, with few exceptions, a well-defined written instructional plan.

IDENTIFICATION SYSTEM DEVELOPMENT

Simultaneous to site visitation and the development of organizing and strengthening activities, the project staff began to review the literature on individualized instruction. A computer search of the ERIC system yielded a substantial number of good documents.

The State RCU had indicated the need to define individualized instruction and the terminology associated with it. There had been wide interpretation of individualized instruction terminology throughout the State prior to the AAIVE project.

Documents such as Review and Synthesis of Research on Individualized Instruction in Vocational and Technical Education (Finch and Impellitteri, 1971) provided an excellent historical background to the studies in individualized instruction. This document provided leads to specific works of authors such as Ullery, Frantz and Woog, et. al.

In each document reviewed, three elements consistently appeared regarding individualizing. These key factors were pace (or the time frame), strategies (or the methods and materials used in the learning process), and objectives (or the measurable tasks involved).

The results of the initial research provided the following definition of individualized learning which proved to be acceptable to those involved with the project.

> Individualized learning is a method involving the teacher and student in establishing the pace, learning strategies and instructional objectives that will provide the student with the incentive to self-master the skills, concepts and values required for successful entry in a chosen occupation.

In an article entitled Individualized Instruction: What Can You Learn From Research? (Finch, 1974), the author identified five major conceptual

components inherent to a classroom or laboratory: teacher, students, instructional content (the curriculum), environment (facilities and equipment) and media.

Other literature defined various levels and uses of individualized instruction. Some documents associated individualizing exclusively with special needs students. Others viewed it as the use of learning activity packages or commercially-available programmed instruction.

Through this comprehensive review of relevant literature, the project staff discerned six levels of individualized instruction. Differentiation in level was based upon variations of the three elements previously desvribed: pace, strategies and objectives. In essence, these levels represented a spectrum that began with teacher-determined pace, strategies and objectives, and ended with teacher-student negotiated pace, strategies and objectives.

Discovering the three key elements and relating them to the aforementioned levels provided an understanding of why there is massive confusion as to what individualized instruction actually is!

To provide a clearer understanding of the interrelationships involved, the key elements and the levels were applied to the five classroom components. As project staff examined this, a whole new series of questions evolved. Two of these questions were:

1. If pace, strategies and objectives are teacher-determined, what would the student component of the classroom be like?

2. What would the critical differences be between students in this type of program and those in a teacher-student negotiated instructional program?

Similar questions were applied to each of the five classroom components for the six instructional programs identified.

Utilizing knowledge acquired from previous school-based experience with the information on individualized instruction provided by the review

of the literature, the project director composed a series of functional statements for each component in each level.

At this point, the concept was shared with the State RCU, project participants, project advisors and selected program consultants in the State Department of Education, Vocational-Technical Division. All components were helpful, resulting in a number of changes.

The second draft, derived from the aformentioned input, was then presented to 50 instructors at the Cheshire Vocational Center in Keene, New Hampshire, and 30 Vermont instructors during two different individualized instruction workshops in which the project director was invited to participate.

Once again, valuable suggestions for change in the chart were provided.

Draft #3 of the chart contained 26 statements considered necessary to establishing the differences among program levels.

At this point in the development of the chart, project staff felt that in order to both simplify the process and prevent bias on the part of anyone using the chart, a two-step process for chart usage would be desirable. To do this, the 26 statements were rewritten in question form and put in a questionnaire format.

(Note: For the sake of clarity, it should be explained that each of the 26 functional statements was written [with its corresponding modification] for all the six program levels. Hence, the final draft of the chart actually contained 156 [or 26 x 6] individual statements. The format of the questionnaire was multiple-choice; and any given response may have represented one or more program levels.)

To make effective use of the chart (now called an "Identification System" because of the two-step process), individuals would first respond

to the questionnaire and then plot their responses on the chart by underlining statements in the appropriate chart column(s). Explicit instructions were provided respondents in an accompanying set of directions.

When the process was completed, the user was able to determine the level of individualization occurring in the classroom. No one statement response provided the answer, rather the 26 responses, when underlined on the chart, indicated the level of individualizing occurring currently in the user's classroom or laboratory.

Although the Identification System had evolved through three drafts and a number of critiques by professional educators in New Hampshire and Vermont, project advisors perceived it as useful to any vocational educator.

As a final check on the value of the system for all vocational personnel, a validation panel review of this system was conducted.

Dr. Mary Marks, Curriculum Specialist for the Bureau of Adult and Vocational Education of the U.S. Office of Education, and Dr. Robert Taylor, Director of the National Center for Vocational Education at the Ohio State University, were asked to identify experts in curriculum, and specifically, individualized instruction.

From the lists provided by Drs. Marks and Taylor, professional educators considered to have expertise in individualized instruction were asked to review the Identification System by responding to the following specific concerns.

<u>How best can the Identification System be used? By whom can it be used</u>?

- For instructors only? Administrators, supervisors, coordinators, etc?
- Broad application to the field of education (as opposed to solely vocational education)?
- Is the instrument too comprehensive for general use?

Can the Identification System be further simplified? If so, how?

- Language (terminology) too technical?
- Is the numerical key the most appropriate way of determining the profile?
- Are all statements or questions clear and concise?
- Are gradations clear and concise?
- Are items/statements too comprehensive?
- Are directions for use clear and concise?

Are the important classroom issues addressed?

- Redundancy of statements?
- Do pace, strategy and objective headings accurately represent columns?
- Is there too much information per component?

Are instruments consistent (congruent) with each other?

- Too many/few choices per question?
- Do questionnaire responses accurately reflect the chart statements?
- Are both instruments necessary?
- Do instruments, in fact, do what we claim they do?

Five of the six experts responded to our request for review. Reviewers provided the project staff with both an overview of their opinions as to the value of the Identification System and their responses to the specific questions stated above.

The results of the review showed significant positive response to the System from four out of five reviewers. The one response appearing to be more negative than the others seemed to be caused by a lack of knowledge of the terminology associated with individualized instruction. All comments were analyzed first by project staff and then by the project evaluator. The suggestions to be implemented, as decided by the project staff and evaluator, were then integrated into the fourth and final draft of the Identification System. Specifically, these changes dealt with simplifying terms, writing an improved set of directions for use and numbering the questionnaire congruent to the chart.

The reviewers also aided in identifying the potential multiple uses of the System. When asked who could benefit by using it, the following possibilities were suggested:

1. Self use

   Self use by the instructor to determine current status of individualization in the classroom or laboratory

2. Instructor-Student

   In addition to the teacher's response, students could be asked to respond to the questionnaire. The instructor could then compare student perceptions of the classroom with his or her own.

3. Instructor-Colleague

   In addition to the teacher's response, a colleague who has extensive knowledge of the instructor's classroom could respond. The instructor could compare his or her perceptions with those of the colleague.

4. Instructor-Supervisor

   For those who would feel comfortable with this, the instructor could request his or her supervisor to respond to the questionnaire. The results could be used in many ways.

5. Coordinator-Instructors

   The coordinator could respond to the questionnaire by requesting all instructors' responses. Results, although no doubt varied in each classroom, might provide direction for staff development programs.

The Identification System, which includes directions for use, the questionnaire and the chart, begins on the next page.

More information concerning the validation process described here may be found in the Evaluator's Report in Section II of this document.

IDENTIFICATION SYSTEM

DIRECTIONS FOR USE

The first part of the System is the Program Assessment Instrument (or questionnaire). There are five sections and a total of 26 multiple choice statements. The sections correspond to classroom components. Student, Teacher, Instructional Content, Environment and Media. It is important that you select the most appropriate statement based upon your program as it now stands.

Some of you may be involved in programs that necessitate choosing more than one statement. If this is the case, circle the applicable statements. Remember, however, that this should be done only if you use radically different approaches within the same program.

As you are filling out the questionnaire, you will see that immediately following each statement are one or more numbers in parenthesis. These numbers correspond to the other part of this section, the chart. A few words of explanation about the chart are in order because, at first glance, it appears to be a rather complicated affair.

Along the left-hand margin, you will see the same five headings contained in the questionnaire: Student, Teacher, Instructional Content, Environment and Media. There seems to be general agreement that these consititute the basic components in any classroom, and the chart has been structured to include the main elements of each of these components.

The headings across the top of the chart represent examples of various instructional programs. Thus, by arranging the chart in this fashion, it is possible to read across - seeing how one element changes in relation to different programs, or to read down - thereby assessing an

instructional system in its entirety. Here you have it: a complete cross-referenced reference.

When you have completed the questionnaire, it would be helpful to have a felt-tip marker, crayon or colored pen. For each statement you chose, refer to the numbers in parenthesis. These numbers are to serve as an aid in locating the correct chart column for your responses. Underline the appropriate chart statement(s) as indicated in the example below.

STUDENT COMPONENT

1.0 The student:

a. progresses through learning activities that have been varied by the teacher (1,2)
b. progresses through activities varied by teacher in terms of pace and strategy (3)
c. engages in teacher-determined activities, based on the results of a pre-test (4)
d. participates in the activity selection process (5,6)

Underline statement 1.0 under Instructional Programs #1 and #2 on the chart. Proceed in this manner until you have plotted all your questionnaire choices onto the chart. It is important to realize that no one statement will help to determine your level of individualization; but that answering all 26 will.

What will probably happen is that your responses will be spread out over two or more columns; but it should give you a fairly reliable assessment of your program as it now stands.

This instrument is intended for use as a tool. There are no hidden turns, no right or wrong choices. It is, hopefully, a way to identify the critical elements of your program and, based upon the pattern that emerges on the chart, indicate your current position on the individualized spectrum.

When you have finished, it might be interesting to examine what the

other listed program alternatives involve, if only to see how they might differ from your own. Check for possible advantages or disadvantages. The programs described here are only examples. They are offered as jumping-off points, to get your thoughts and imagination flowing.

PROGRAM ASSESSMENT INSTRUMENT

FOR

IDENTIFICATION SYSTEM: LEVELS OF INDIVIDUALIZED INSTRUCTION

STUDENT COMPONENT

1.0 The student:

a. progresses through learning activities that have been determined by the teacher (1,2)
b. progresses through activities varied by teacher in terms of pace and strategy (3)
c. engages in teacher-determined activities, based on the results of a pre-test (4)
d. participates in the activity selection process (5,6)

1.1 Quantity/Quality standards are:

a. provided by the teacher and the same for all students (1)
b. provided by the teacher with some variation for individual differences (2,3,4)
c. provided by the teacher, but shaped by student input (5,6)

1.2 Overall student self-expression can best be described as being:

a. limited to student response to teacher inquiry (1,2)
b. encouraged in the form of group and teacher-student discussions (3,4)
c. essential for purposes of accommodating student learning styles (5,6)

1.3 Regarding curriculum content, previous experience/knowledge is:

a. not a determining factor (1,2)
b. measured and the program adjusted accordingly (with regard to pace, strategy and objectives - or a combination thereof) (3,4,5)
c. the basis for estimating student entry at a particular level (6)

1.4 Special abilities/deficiencies are:

a. recognized, but for whatever reasons, given little consideration (1)
b. recognized, and minimally incorporated into the program (2)
c. recognized and incorporated in planning strategies; may be determined by a pre-test (3,4)
d. diagnosed and may be negotiated in terms of strategies objectives (5,6)

1.5 Regarding small group, individual and peer-tutoring approaches, students have:

a. little, if any, small group work; no individual work or peer-tutoring (1)
b. limited work with small groups or individuals (2)
c. some small group work; individual work if time allows; limited peer-tutoring (3)
d. some small group; mostly individual work; peer-tutoring (4)
e. substantial amount of both teamwork and individual attention (5,6)

TEACHER COMPONENT

2.0 The teacher:

a. spends majority of time in formal presentation to class (1)
b. spends much of time in formal presentation, but encourages questions (2)
c. engages in some formal presentation, but encourages discussion (3)
d. engages in minimal formal presentation, spending majority of time initiating discussions (4)
e. engages in little or no formal presentation (5,6)

2.1 The curriculum/lesson plans are:

a. based on instructor's outline, derived from textbook and the same for all students (1)
b. based on instructor's outline, but varied as to pace, strategy and objectives - or a combination thereof (2,3,4)
c. based on an educator-produced curriculum guide, with strategy and objectives discussed with student (5)
d. contracted/selected by student with objectives approved by instructor (6)

2.2 Regarding work with individuals and small groups, the teacher:

a. engages in limited work with individuals and small groups (1,2)
b. emphasizes small groups, works with individuals if time permits (3)
c. spends majority of time with individuals and small groups (4,5)
d. spends majority of time tutoring individuals (6)

2.3 The teacher's role is:

a. sole purveyor of knowledge (1,2)
b. largely that of manager of learning activities (3,4,5)
c. diagnostician, tutor and manager of learning (6)

3.5 Course content:

a. is not revised on a regular basis (1)
b. is modified to meet group competency needs (2)
c. provides limited alternatives for student differences (3)
d. is prescribed for individual student by teacher (4)
e. is prescribed for individual student by teacher with student input (5)
f. is selected by student with teacher approval and guidance (6)

3.6 Instructor diagnostic and prescriptive measures are:

a. not currently parts of your program (1)
b. minimally used to determine pace (2)
c. used to determine pace and strategy (3)
d. provided for each student with regard to pace, strategy and objectives (4,5)
e. provided for and discussed with each student (6)

3.7 Evaluation techniques are:

a. limited in method and teacher-accomplished (1,2)
b. varied in method and teacher-accomplished (3)
c. varied in method, teacher-accomplished, but student self-evaluation is encouraged (4,5)
d. varied and jointly agreed to between teacher and student (6)

3.8 Recordkeeping is:

a. rank book type, teacher-accomplished (1)
b. adjusted to accommodate learning styles; teacher-accomplished (2)
c. adjusted to accommodate learning styles; teacher-accomplished, but student access assured (3,4)
d. student-maintained, teacher-validated (5,6)

3.9 Performance feedback is accomplished:

a. by group review only (example: tests) (1)
b. individually, only when student is having problems (2,3)
c. individually, on a regular basis (TIME-BASED) (4,5)
d. individually, on a regular basis (PERFORMANCE-BASED) (6)

ENVIRONMENTAL COMPONENT

4.0 The course schedule is:

a. pre-determined and regulated (1)
b. pre-determined and regulated with minimal variation for pace differences (2)
c. flexible (3)

(continued on following page)

d. varied according to individual prescription (4)
e. dictated by instructional units (5)
f. determined by outcome of negotiated activities (6)

4.1 Students:

a. all do the same thing at the same time (1)
b. may or may not do the same thing at the same time (2,3)
c. work mostly in small groups or on an individual basis, determined by teacher or curriculum guide (4,5)
d. work mostly on an individual basis, determined by objectives (6)

4.2 Regarding resources:

a. usage is teacher-determined and limited in variety (1,2)
b. alternative resources are available; but usage is teacher-determined (2)
c. extensive alternative resources are available to student with teacher approval (4,5)
d. extensive alternative resources are available to student as set forth in teacher-student contract (6)

MEDIA COMPONENT

5.0 Textbook usage can best be described as:

a. single text predominates (1)
b. textbook with supplementary print materials (2,3)
c. programmed texts (4)
d. alternative printed materials (5,6)

5.1 Non-print media is:

a. limited in use (1,2,3)
b. used to supplement programmed texts (4)
c. used extensively and related to objectives (5,6)

5.2 Use of media materials is:

a. teacher-controlled (1,2,3,4)
b. teacher-identified but student-controlled (5,6)

IDENTIFICATION SYSTEM: LEVELS OF INDIVIDUALIZED INSTRUCTION

	INSTRUCTIONAL PROGRAM #1 *Pace, Strategy, Objectives } Same for all students/determined by instructor*	INSTRUCTIONAL PROGRAM #2 *Pace – Varied by instructor; Strategy, Objectives } Same for all students/determined by instructor*	INSTRUCTIONAL PROGRAM #3 *Pace, Strategy } Varied by instructor; Objectives – Same for all students/determined by instructor*	INSTRUCTIONAL PROGRAM #4 *Pace – Student-determined [in given framework]; Strategy, Objectives } Varied and determined by instructor*
STUDENT COMPONENT	1.0 Looks to teacher for all learning activities	1.0 Progresses through required learning activities	1.0 Progresses through varied required learning activities	1.0 Varied learning activities determined by pre-test indicating needed skills
	1.1 Looks to teacher for quantity/quality standards	1.1 Looks to teacher for quantity/quality standards; pace somewhat flexible	1.1 Looks to teacher for quantity/quality standards; pace/strategies more flexible	1.1 Looks to teacher for quality/quantity standards; self-paced in teacher-established framework
	1.2 Self-expression limited	1.2 Self-expression limited	1.2 Self-expression encouraged	1.2 Self-expression encouraged
	1.3 Previous experience/knowledge not a determining factor	1.3 Previous experience/knowledge not a determining factor	1.3 Previous experience/knowledge utilized in determining learning strategies	1.3 Previous experience/knowledge essential for determining strategies/objectives
	1.4 Little recognition of special abilities/deficiencies	1.4 Special abilities/deficiencies recognized; minimally incorporated into program	1.4 Special abilities/deficiencies incorporated into strategies	1.4 Special abilities/deficiencies determined by pre-test
	1.5 Little, if any, small group work; no individual work or peer tutoring	1.5 Limited work with small groups/individuals	1.5 Some small group work, limited peer tutoring, individual work if time allows	1.5 Peer tutoring, self-correction and limited self-prescription encouraged; small group used, but mostly individual
TEACHER COMPONENT	2.0 Majority of time spent lecturing to entire group	2.0 Mostly large group lectures, questions encouraged	2.0 Some large group lecture, questions/discussion	2.0 Minimal lecture, teacher-initiated discussion
	2.1 Use of teacher outline/lesson plans, prepared from textbook	2.1 Use of teacher outline/lesson plans; some individualization as to pace	2.1 Use of teacher outline; variation in pace/strategy	2.1 Use of teacher outline; variation in strategy/objectives
	2.2 Limited work with individuals/small groups	2.2 Limited work with individuals/small groups	2.2 Emphasis on small groups; works with individuals if time permits	2.2 Time spent tutoring individual students/small groups
	2.3 Functions as sole purveyor of knowledge	2.3 Functions as sole purveyor of knowledge	2.3 Functions largely as manager of learning	2.3 Functions largely as manager of learning
INSTRUCTIONAL CONTENT COMPONENT	3.0 Instructional objectives related to teacher activities	3.0 Instructional objectives related to teacher activities, but flexible	3.0 Instructional objectives related to student-teacher activities, but flexible	3.0 Instructional objectives related to student skills, determined by pre-testing
	3.1 Uniformly selected/presented to all students	3.1 Uniformly selected/presented to all students; some tutorial help	3.1 Uniformly selected/presented to students; flexible as to activities	3.1 Prescribed for each student by instructor
	3.2 No method(s) to handle special needs students	3.2 Minimal variation for special needs students	3.2 Special needs students accommodated by variation in pace and strategy	3.2 Special needs students automatically accommodated by individualized prescription.
	3.3 Performance compared to other students (norm-referenced)	3.3 Performance compared to other students (norm-referenced)	3.3 Performance compared to minimum competency standards (criterion-referenced)	3.3 Performance compared to minimum competency standards (criterion-referenced)
	3.4 Traditional grading	3.4 Traditional grading; some consideration for special needs students	3.4 Pass/Fail usually converted to norm grading (to accommodate school policy)	3.4 Pass/Fail usually converted to norm grading (to accommodate school policy)
	3.5 Little, if any, revision of course content	3.5 Content adjusted to group competency needs	3.5 Limited content variation	3.5 Content matched to student needs by teacher
	3.6 No presence of instructor diagnosis/prescription for individualizing	3.6 Minimal use of instructor diagnosis/prescription for individualizing pace	3.6 Increased instructor diagnosis/prescription to individualize strategies	3.6 Instructor diagnoses/writes prescription to meet student's needs
	3.7 Evaluation techniques limited in method, teacher-accomplished	3.7 Evaluation techniques limited, teacher-accomplished	3.7 Evaluation techniques varied; teacher-accomplished	3.7 Evaluation techniques varied; teacher-accomplished, student evaluation encouraged
	3.8 Recordkeeping is rank book type; teacher-accomplished	3.8 Recordkeeping adjusted for learning styles; teacher-accomplished	3.8 Recordkeeping adjusted to accommodate learning styles; teacher-accomplished, student access assured	3.8 Recordkeeping adjusted to accommodate learning styles; teacher-accomplished, student access assured
	3.9 Performance feedback by group review only	3.9 Performance feedback by group review; special problems handled individually	3.9 Performance feedback by group review; special problems handled individually	3.9 Performance feedback on scheduled basis for individuals; emphasis on time base
ENVIRONMENTAL COMPONENT	4.0 Course schedule pre-determined and regulated	4.0 Course schedule pre-determined/regulated; minimum variation for pace differences	4.0 Course schedule flexible, based on variations in strategy/pace	4.0 Course schedule varied according to individual prescription
	4.1 All students do same thing at same time	4.1 All students may/may not do same thing at same time	4.1 Increase of small group/individual activities	4.1 Most activities small group/individual
	4.2 Resources teacher-determined	4.2 Limited alternative resources, teacher-determined	4.2 Alternative resources teacher-determined	4.2 Extensive alternative resources determined by teacher
MEDIA COMPONENT	5.0 Single textbook predominates	5.0 Textbook/supplementary print materials	5.0 Textbook/supplementary print materials	5.0 Programmed texts
	5.1 Non-print media limited	5.1 Non-print media limited	5.1 Non-print media limited	5.1 Non-print media used to supplement programmed texts
	5.2 Media teacher-controlled	5.2 Media teacher-controlled	5.2 Media teacher-controlled	5.2 Media teacher-controlled

INSTRUCTIONAL PROGRAM #5		INSTRUCTIONAL PROGRAM #6	
Pace – *Determined by student* *Strategy* – *Negotiated/discussed* *Objectives* – *Determined by educator-produced curriculum guide; but process discussed*		*Pace* – *Determined by student* *Strategy* – *Provided by activity description of goals and teacher guidance* *Objectives* – *Negotiated/discussed*	
1.0	Varied learning activities, student/instructor negotiated	1.0	Varied learning activities negotiated, tasks agreed upon
1.1	Quality standards written into curriculum, expressed in terms of competencies; quantity standards negotiated; self-pacing	1.1	Student aware of performance standards (quality); participates in choosing learning materials/goals; self-pacing
1.2	Self-expression encouraged/required	1.2	Self-expression necessary/integral to program
1.3	Previous experience measured; program adjusted accordingly	1.3	Student enters program at level commensurate with previous experience/knowledge (open entry)
1.4	Special abilities/deficiences diagnosed; incorporated into strategy by negotiation	1.4	Special abilities/deficiencies diagnosed/ negotiated for strategies
1.5	Substantial amount of teamwork with other students; individual attention	1.5	Mostly team/individual work
2.0	Little formal presentation	2.0	No formal presentation
2.1	Use of curriculum guide; strategy/objectives discussed with students	2.1	Contracted or selected; teacher-approved objectives
2.2	Time spent tutoring individual students/ small groups	2.2	Works mostly on an individual basis
2.3	Functions as manager of learning	2.3	Functions as diagnostician, tutor, manager of learning
3.0	Instructional objectives pre-determined, but negotiated on an individual basis	3.0	Instructional objectives negotiated and discussed
3.1	Jointly established by teacher/student	3.1	Content flexible in methods/activities through teacher-student contract
3.2	Special needs students accommodated through joint establishment/discussion of strategy	3.2	Special needs students accommodated through joint establishment/discussion of objectives and strategies
3.3	Performance compared to minimum competency standards (criterion-referenced)	3.3	Performance compared to minimum competency standards (criterion-referenced)
3.4	Pass/Fail many/may not be converted to to norm grading (to accommodate policies)	3.4	Pass/Fail may/may not be converted to norm grading (to accommodate school policy)
3.5	Content matched to individual need by teacher/student	3.5	Content selected by student, teacher approval/guidance
3.6	Diagnostic/prescriptive measures directly associated with curriculum guide objectives	3.6	Diagnostic/prescriptive approach included in negotiation contract
3.7	Evaluation techniques varied; teacher-accomplished, student evaluation encouraged	3.7	Evaluation techniques varied, jointly agreed to by student/teacher
3.8	Recordkeeping adjusted to accommodate learning styles; student-maintained, teacher validated	3.8	Recordkeeping adjusted to accommodate learning styles; student-maintained, teacher-validated
3.9	Individual performance feedback on scheduled basis; emphasis on time base	3.9	Individual performance feedback on scheduled basis; emphasis on performance base
4.0	Course schedule dictated by instructional units	4.0	Course schedule determined by outcome of negotiated activities
4.1	Mostly small group/individual activities, but determined by curriculum guide	4.1	All small group/individual activities
4.2	Extensive alternative resources available with teacher approval	4.2	Extensive alternative resources available as set forth in teacher-student contract
5.0	Alternative printed materials	5.0	Alternative printed materials
5.1	Non-print media extensive, related to objectives	5.1	Non-print media extensive, related to objectives
5.2	Media teacher-identified, student-controlled	5.2	Media teacher-identified, student controlled

HANDBOOK DEVELOPMENT

By late fall 1976, the participants and staff of the project recognized that instructors electing to change their instructional programs did so primarily out of their own or student frustration with the teacher-centered style. Furthermore, once a decision had been made to alter instructional delivery, it was vital that a plan for change or improvement be established.

Participating instructors agreed that the processes described above were the first two steps in the shift toward student-centered individualized instruction.

It was agreed that the Identification System determining the status of an existing program would be helpful to teachers contemplating changes in instructional delivery.

Further, it was agreed that the organizing and strengthening task list established through this project was a must for any instructor considering changes in instructional delivery.

It was proposed to utilize these components as the basis of a handbook on individualized instruction. Project staff, participating teachers and advisors agreed that a handbook describing what individualized instruction is, how to determine if an instructor is doing it, and the problems associated with it would be of great help to instructors contemplating paths similar to those of the project teachers.

Early in 1977, the project staff began to assemble a draft of such a handbook. The definition of individualized instruction developed earlier was supplemented with definitions of terms associated with individualized instruction. This was reviewed by all those individuals involved

in the project. The result was an extensive five-page glossary of terms.

Immediately following the Introduction, the glossary held a prominent space in the handbook. Project staff felt it essential for any reader to know, at the outset, the proper meanings of terms used throughout the handbook.

The previously-developed Identification System followed the glossary. Upon completing the Identification System, the handbook reader was encouraged to determine if he or she wished and/or needed to move further toward a student-centered program.

The section that followed the System related problems that could, or in some cases were sure to, occur if individualization was implemented or improved. Problems such as administrative support or change in instructional delivery, teacher-dependent students, facilities changes to accommodate student-centered learning, or serving special needs students must have solutions if individualized instruction is to be successfully implemented.

Although it was not possible to anticipate and provide suggested solutions for all problems associated with the implementation of individualized instruction, project participants and staff identified a list of key problem areas, and dealt with these in a "Issues You May Encounter" section of the handbook. Recognizing, through the experiences of participating instructors, that the most critical problem facing teachers wishing to individualize was a lack of a well-defined curriculum, an entire handbook section was devoted to this issue. This section provided the reader with definitions and directions to establish each component of a curriculum.

The final section of the handbook comprised a list of resources available to the reader. This resource list contained human resources

available in New Hampshire and regionally. It also included material resources available in the State and throughout the nation.

At the outset of the handbook development, project staff, participants and advisors agreed that the goals of a useful handbook should be:

a. to provide information about individualized instruction - what it is and terminology

b. to aid teachers to identify if they are doing it and what the current level is

c. to discuss the issues involved in changing instructional delivery and to aid instructors in setting up their own planning process

d. to refer them to resources that will be helpful in accomplishing their plan.

The completed handbook appears to have met these goals.

The handbook is being submitted to the project sponsors. It is assumed that the handbook will be cited in the ERIC collection. Limited hard copies will be available through the Vocational Curriculum Research Office at Keene State College or the RCU Director in the New Hampshire State Department of Education.

The RCU and other State vocational officials are now meeting with project staff to determine a dissemination plan for the handbook and other products of the AAIVE project.

SITE PROGRAM EVALUATION EFFORTS

In November, 1976, Dr. Gerald Thomas, Associate Professor of Vocational Teacher Education, Keene State College, agreed to assume the role of third party evaluator for the AAIVE project.

In December, 1976, meetings between the project director, the State RCU Director and the evaluator produced a formal evaluation design for the project.

The design described the measures to be used in evaluating the accomplishments related to the six major objectives of the project. These objectives, paraphrased here, were:

1. Organizing and strengthening of model program sites.
2. Determine whether individualized instruction has the capacity to serve more students.
3. Determine whether individualized instruction has the capacity to serve a greater variety of students.
4. Determine the organizational, program and teacher characteristics, related to individualized instruction.
5. Determine the effectiveness of the various typyes of individualized instruction.
6. Devise an informational handbook for vocational instructors that describes what individualized instruction is and how to accomplish it.

The process of accomplishing objectives #1 and #6 and the evaluation procedures are discussed in the sections on Organizing and Strengthening and Handbook Development in this report.

The remaining objectives were all measured in a similar manner; therefore the procedures used are described collectively here.

Specifically, what is described is the background of how the process was established and the role of the project staff and participants.

Results achieved regarding the objectives will be discussed in detail in the Results section and in the Evaluator's Report which is found in Section II of this report.

At the outset of the project, it was thought that an analysis of data collected from the model programs and comparable programs using a "traditional", teacher-centered, group instruction approach would produce hard evidence to measure the objectives.

A list of similar programs, their locations and instructors' names was developed by the State RCU and the project director. In some cases, the vocational directors responsible for these comparable programs were contacted and the concept of comparing programs was discussed.

These conversations and the personal knowledge of the project director concerning some of these programs soon caused the abandonment of this approach. It was obvious that none of the potentially comparable programs was solely traditional, teacher-centered, group-instructed programs.

Each of the programs had elements of individualized instruction, although none was at the same level as the model programs.

In essence then, there was no way to make direct comparisons between participating programs and others since the variables were extensive and uncontrollable. This potentially disturbing situation engendered its own positive outcome - in the form of the Identification System described earlier. Project staff realized that perhaps energies would be better utilized by attempting to define and determine the various levels and corresponding elements in the individualized spectrum.

This, it seemed, would be a far more important and useful contribution to vocational educators.

As previously described, it is believed the Identification System has aided in accomplishing that goal.

As the original process to measure these objectives was discarded, it was thought that the evaluator's data collection and site visitation and interviews would provide substantial evidence as to the effectiveness of the programs.

The evaluator could then draw general conclusions as to the effectiveness of the programs, and determine if they could, in fact, serve a greater number and variety of students. This would, of course, be relative to all other programs in the State, regardless of the level of group or individualized instruction.

The interview process and site observations were also determined the best method to produce evidence of the organizational, program and teacher characteristics, as well as the effectiveness of the alternative approaches used by the participating programs.

The evaluator, project staff, participants and advisors met early in the 1977 school year to discuss the components of evaluation. The types of data needed to describe each program and document its effectiveness were discussed. It was agreed that participants were to be fully involved in the data collection. The project staff, in cooperation with the evaluator, assembled an "evaluation package" that was to be maintained by participants through the conclusion of the project. The package contained forms for:

a. Enrollment and facilities
b. Material purchases
c. Detailed explanation of alternative individualizing approach
d. Visitations by others and by participants to other programs
e. Dissemination activities of participants
f. Comments received about the program
g. Follow-up information information on former students
h. Personal log: observations,anecdotal records and so forth, pertaining to the program and students.

A sample of this package was included in the Interim Evaluation Report submitted to the Project Officer in January, 1977.

In addition to developing the evaluation package, it was obvious that to accomplish objective #4 dealing with teacher attitudes and characteristics, an appropriate attitude scale would need to be developed. Through the literature reviews, a document entitled An Assessment Procedure to Determine the Effectivenss of Individualized Instruction Approaches in Technical Institutes and Community Colleges in North Carolina was found to contain an attitude scale that, with modification, could be used at the secondary level. Samples of attitude scales were provided to the project evaluator.

To supplement the data collected via the evaluation package and the attitude scale, the evaluator utilized a personal interview technique with students, teachers and administrators. The project staff made the arrangements for these on-site interviews.

Before concluding this section of the report, another form of evaluation, utilized internally by the project staff, should be noted.

Throughout the project, as new components were developed and implemented by site teachers, each was reviewed, critiqued and evaluated by the project staff. Participants agreed that this form of evaluation was valuable in assuring successful use of the materials.

In one instance, involving the Electronics program at the Nashua Center (which utilized a modular approach to individualized instruction) there was a need to determine the appropriateness of all materials developed, both prior to and during the project. The project staff lacked the technical competencies to critique advanced levels of electronics instruction. Arrangements were made to hire a technically competent person to review all materials. The project director and the Nashua Vocational Coordinator negotiated a contract with the selected individual who was employed as a technical writer for a well-reputed electronics firm in the Nashua area. The extensive background in electronics, coupled with the

writing skills of the person, produced an excellent evaluation report. The report was reviewed by the site teacher and the recommended changes were discussed.

Most of the selected changes were minor, with the industrial consultant commending both the materials and the individualized approach used to deliver instruction.

DUAL ROLE OF PARTICIPANTS AND BENEFITS DERIVED

Simultaneous to the development of the proposal for this project, the State Department of Education, Vocational-Technical Division Chief and the State RCU were beginning to discuss the issue of articulation between secondary and post-secondary vocational programs in New Hampshire.

The then-Division Chief, Dr. Neal Andrew, and the committee of consultants recognized the similarity of the organizing and strengthening activities proposed for the AAIVE project, to the needs of vertical curriculum articulation.

To accomplish curriculum articulation between the two levels, it was necessary for teachers involved to have:

a. an established occupational cluster
b. task analyses for occupations in the cluster
c. written measurable instructional objectives.

By November, 1976, it was obvious that participating programs in the AAIVE project were accomplishing activities to assure that those elements were in place.

A proposal submitted to the Professional Development Director in the Vocational-Technical Division of the State Department of Education was approved. The accepted plan proposed to utilize the AAIVE project instructors as the nucleus for a curriculum articulation effort.

All instructors agreed to participate. Somersworth and its unique community-based program was not involved, since it was the only program of its kind in the State.

Following considerable discussions with administrators at both secondary and post-secondary levels, each AAIVE program was teamed with a complementary program at the other level. In early January, 1977, the list

of vocational instructors representing the following programs was finalized.

Child Care - Salem Vocational Center	Child Care - Keene State College (Child Development Program)
Culinary Arts - Dover Vocational Center	Culinary Arts - N.H.V.T.C., Berlin
Electronics - Nashua Vocational Center	Electronics - N.H.V.T.C., Nashua
Power Mechanics - Plymouth Vocational Center	Power Mechanics - N.H.V.T.C., Laconia
Welding - N.H.V.T.C., Manchester	Welding - Berlin Vocational Center

A sixth program, in Health Occupations, was also selected as there was a definite need for articulation between levels in this area. The health programs at Stevens High School and the New Hampshire Vocational Technical College, both located in Claremont, participated.

As the complementary sites were not at the level of instructional development of the AAIVE participants, it was necessary to develop an instructional learning package (ILP). The ILP described how to accomplish job family clustering, task analysis and writing of instructional objectives. The ILP was disseminated to all participants.

Each participant, working independently, was able to complete the development of the three instructional components using the format provided. When the articulation workshop was held in the summer of 1977, participants presented their programs in the same format and style as their counterparts. Later, it was agreed that presenting curriculum content in this way was a key factor to successful curriculum articulation.

Value of the dual role

The preparation of the ILP to accomplish the three components of instruction aided AAIVE participants in organizing their curricula with accuracy and speed that would not have occurred without it.

Since the materials had to be discussed with counterparts at the articulation workshop, any weaknesses in these elements of the program were noted and corrected.

Recognizing the successful use of the ILP for the three curriculum components mentioned previously, the project staff designed similar packages for the remaining components of an instructional system. Components for selecting learning activities, evaluation and recordkeeping/follow-up were written.

Section V of the handbook entitled Identifying and Improving Vocational Education: A Handbook for Individualized Instruction for New Hampshire Vocational Educators, created as a major product of the project, was the end result of this activity.

The articulation effort and its final report, completed in September, 1977, evoked considerable attention from vocational groups throughout the State. Since the AAIVE project instructors were the nucleus of the effort, articulation participation provided extensive visibility for the project programs and the alternative approaches utilized by the programs.

RESULTS AND CONCLUSIONS

Recognition of the importance of curriculum

The original project proposal indicated "the next five years will become a critical time for examining instructional systems of secondary and post-secondary vocational education in New Hampshire."

The AAIVE project has provided the initial basis for study of curriculum change. The project has the potential to create positive change throughout the State's vocational facilities.

The visibility achieved through this project has tended to raise the priority level of curriculum development as a vital factor in improving the quality of vocational education in New Hampshire. This is evidenced by continue State support for the Vocational Curriculum Research Office at Keene State College, originally implemented to conduct this project. This office will, for the foreseeably future, continue to provide curriculum leadership for the secondary and post-secondary vocational programs of New Hampshire.

Establishing models

One of the ways change occurs in education is through model development. The project has aided in producing six on-going model programs using alternative individualized instructional delivery systems. The AAIVE project participating programs will continue to provide the State and region with adaptable models of quality individualized instruction. Each program has had, and will continue to have, the potential to effect change in its own school district.

Clarifying terms and existing status

The problem of clarifying the meaning of individualized instruction

was met through a review of the literature. This produced a glossary of terms that has already been accepted by all vocational educators associated with the project, as well as most State consultants and vocational administrators.

In addition to providing educators with terminology background, the project has produced the first known system for identification of classroom individualization levels. Although it is understood that the Identification System must have further testing of its validity and reliability, its present composition will allow vocational educators to define "state of the art" status of individualized instruction. The System provides a substantial framework on which to base decisions for change in the structure of instructional programs.

Directions for accomplishing change

Through the project efforts, instructors not only can identify present status but can implement change through the use of the handbook on individualized instruction. The handbook provides much of the important imformation any vocational educator in New Hampshire or the region must consider if individualized instruction is the instructional goal.

Evaluation limitations

Although each of the participating site models contained a high level of individualized instruction, it was very difficult to provide evidence of each program's effectiveness. Lack of the feasibility of using comparable programs, coupled with a limited data base available through the State Department of Education sources, prevented the accumulation of solid evidence of program effectiveness.

The use of a third party evaluation with its on-site visitations, interviews of students, instructors and administrators can, at best,

only formulate general suppositions as to the total effectiveness of the individualized instruction system of delivery.

Dual role success

In view of the State's concern for articulation, the AAIVE project participants' involvement and leadership was an unanticipated positive outcome of the project.

The level of program documentation relative to identified job clusters, task analyses and instructional objectives required to accomplish individualized instruction was highly beneficial. Having the aforementioned components totally in place at the site programs enabled each participant to provide leadership in carrying out the objectives of the articulation project.

This experience leads us to assume that other instructors reaching the same level of documentation in their curricula would readily be able to assume a leadership role in any future articulation effort plan by the State Administration.

RECOMMENDATIONS

Further curriculum study

The AAIVE project has been New Hampshire's first attempt to study the feasibility of alternative approaches to instructional delivery.

It was determined early in the development of this project that little or no State Department data is available to determine the status of curriculum documentation and the variations of instructional delivery throughout the State.

The accountability factors in the new legislation for vocational education now make it possible for the State to provide better and more appropriate data for evaluation in the future.

It is recommended that further study of curriculum and the status of instructional delivery for all secondary vocational centers be accomplished in the near future.

The feasibility of a master plan for curriculum planning and development for all vocational programs should be studied. This would allow limited human and material resources to be effectively used without duplication of effort.

Vocational programs Statewide should be encouraged, if not required, to achieve the level of instructional development reached by the model programs. This should be accomplished regardless of the methods used to deliver instruction. State consultants and local administrators should encourage instructors to use the curriculum documents produced through the efforts of this project.

It is also recommended that the vocational leadership in the State establish minimum standards for reporting curriculum content for all vocational programs.

Use of model programs

The New Hampshire State Department of Education consultants and local administrators should encourage instructors interested in exploring the potentials of individualized instruction to:

a. Review the handbook on individualized instruction developed through this project

b. Visit one or more of the model programs that have participated in this project.

Consultants and local administrators should also utilize model program instructors in any future workshops related to alternative delivery systems for instruction.

Identification System

The Identification System for determining classroom levels of instruction has been validated by a significant number of instructors and a small group of curriculum specialists.

It is recommended that this System be further studied. The System could have impact on teachers' decisions to change instructional patterns.

The challenge of establishing an expanded validation process for this instrument could be useful to all educators.

With limited adaptation, this model which was designed for vocational educators could have application to general education.

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THIRD PARTY EVALUATION

OF THE

AAIVE PROJECT

June, 1978

Submitted by:

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INTRODUCTION

The purpose of this evaluation is to assess the accomplishments of the Alternative Approaches to Individualization in Vocational Education (AAIVE) Project. This project was funded by the U.S. Office of Education under Grant No. G007630809 under the provisions of Part C of the Vocational Education Act of 1963 as amended in 1968. The duration of the project extended from July 1, 1976 to June 30, 1978, and was directed by John R. Faust. The administrative and operational base was located at Keene State College, a member of the University System of New Hampshire.

BACKGROUND

The initiators of the project along with key vocational education leaders in New Hampshire believed that non-traditional instructional approaches were necessary to maximize instructional efficiency in terms of serving more vocational students as well as a wider variety of vocational students. Prior to the AAIVE Project, the state funded a limited number of secondary and post-secondary programs for the purpose of providing new learning methodologies. These programs were known as exemplary programs and hopefully would become model sites for the promotion of non-traditional instructional programs in vocational education. Unfortunately, little data was available for supporting the effectiveness of these exemplary programs. The AAIVE Project was conceived as a logical extension for carrying on the state's concern for maximizing the delivery of vocational education.

The major thrusts of the AAIVE Project encompassed activities geared around the following objectives:

-Organize, strengthen and test six selected individualized instruction programs so that each model site contains an organized, strong and measurable individualized approach to vocational learning.

-Develop individualized instructional programs in vocational education which have the capacity of serving more vocational students effectively when compared to vocational programs using traditional instructional approaches.

-Develop individualized instructional programs in vocational education which have the capacity to serve a greater variety of students when compared to vocational programs using traditional instruction.

-Identify the organizational, program, and teacher characteristics which make individualized instruction programs effective in meeting the needs of more and varied vocational students.

-Utilize these model programs to demonstrate and disseminate the effectiveness of various types of individualized and/or modularized instruction in vocational education.

-Devise an informational handbook that answers some common questions concerning individualized instruction.

The nucleus of the project were six test sites situated in various locations around New Hampshire.

EVALUATIVE STRATEGY

This evaluative report follows closely the evaluation design devised early in the project. Some deviation from the evaluation design has taken place to compliment some variations made in carrying out the project. The major objectives of the project will be analyzed by both process and product evaluative techniques. It should be noted that this evaluation is largely documentary in nature and there is little factual evidence to firmly support solutions to many questions the project sought to answer.

It was discovered as the project began that various data needed for comparative purposes for supporting some major conclusions could not be

obtained. After several unsuccessful attempts to obtain this information, it was concluded that New Hampshire had not, at the time of this evaluation, a retrievable data information system for educational statistics. Consequently, some alternative approaches were generated for analyzing the results of the project.

Evaluative data was secured by interviews with students, teachers and administrators, project meetings, project logs, attitude scales, data from an evaluative booklet completed by the test site participants, reviews of all materials developed, on-site observations and inspection of program materials and on-going evaluative procedures on various process oriented AAIVE activities.

ORGANIZING AND STRENGTHENING

Site Identification

Six sites were chosen for participation in the AAIVE Project in concert with the project director and the project advisory committee. All sites selected except one, were exemplary secondary programs in their respective areas and were previously involved with non-traditional instructional activities in vocational education. The other site, a post-secondary welding process program, was selected because of the project director's previous association in assisting the program to becoming individualized.

The vocational specialty areas represented were: power mechanics, child care, food services, electronics, welding processes and a special program encompassing many career areas titled Project Bridges. Project Bridges was a community-based work experience program.

Because the sites selected were generally advanced in terms of non-traditional instructional approaches, the project director was able to

begin almost immediately without having to spend time on fundamental competencies for program planning.

Of all test sites selected for participation, the Project Bridges community-based work experience program was the only model site that seemed inappropriate for the AAIVE Project. Project Bridges was a federally funded career education project using the community as instructional agents. There is no question regarding the individualized nature of the program, in fact, it had already accomplished some of the AAIVE Project goals. Briefly, Project Bridges covered many career specialties of an individualized nature and could be more appropriately referred to as work experience program. Teaching and learning was individualized for each learner with no formal classroom structure. The Director of Project Bridges was an administrator whereas the other participants were teachers.

The AAIVE Project was designed to complement "in house" school programs and not community-based programs. This incompatability surfaced early in the project and the Director of the AAIVE Project should not be held responsible for this site selection since Project Bridges was brought into the AAIVE Project as a result of influential State Department of Education advisors who believed it could provide an added dimension to the AAIVE Project. It should be noted that the Project Bridges program will not be generally discussed during this evaluation report. This omission is based on the evaluator's belief that it was mismatched with the other test sites, and the Project itself.

Organizational activities

Organizational and orientation activities were arranged to take into consideration the strengths and weaknesses of each model site. The project director and each site test instructor collectively agreed upon activities

to be carried out. The commitment made by both parties was formalized and a written agreement established. Strengthening activities were developed for both the 1976-77 and 1977-78 academic year.

As inspection of the organizing and strengthening activities for each test site indicated that the tasks were significant to the outcomes of the AAIVE Project. All tasks were documented and were done in a timely manner.

A review of minutes of all project meetings related to the organizing and strengthening component provided substantial insight to the processes employed to ensure success. Follow-up interviews with the project participants and a review of all materials developed by the project director and the test site instructors demonstrated that the strengthening component was well organized. All evidence gathered supports the statements made by all the test site instructors that the organization and strengthening activities were responsible for accelerating the development of each of their programs, Project Bridges included.

Summer Contracts

Originally, a workshop was planned for the summer of 1977, for all project participants. However, progress by each participating teacher towards strengthening and orgainzing their programs differed to the extent that little was to be gained by a group summer workshop. Fortunately, the project director practices what he was preaching, and individualized the summer activities in the form of contracts.

The contracts were all completed and the products and verbal comments from the summer participants demonstrated to the evaluator that this activity was successful.

Major Material Acquisition

Three model sites requested and received funds to print materials that were part of their organizing and strengthening activities. Nashua's vocational electronics program purchased film strips with accompanying sound cassettes, 8 mm film loops, 35 mm slides with sound cassettes, concept film strips and reference texts. Plymouth's vocational power mechanics program purchased four curriculum guides, the Ken Cook Chain Saw Program, and the DART Program. Dover's food trades program received funding for the design and printing of individualized instruction education charts that were developed as part of the AAIVE Project.

Approximately $5300 of Project funds were utilized for supportive instructional materials. In addition, an investigation has shown that financial support for typing services, teaching substitutes for releasing project participants for planning and work sessions, computer library searches, reference books and in one case a technical review of developed materials by an industrial expert was also provided as part of the organizing and strengthening activities.

All major instructional materials purchases through the project were observed in use during visits to test sites.

The quality and quantity of resource materials was judged as appropriate and most of the materials showed signs of useage. Two of the test sites had take precautions regarding the reading levels of materials acquired and teacher developed. More attention needs to be given to the reading level of materials prior to acquiring them.

Teacher Comments

Many comments were made during interviews by the instructors of the test sites on the benefits of the AAIVE Project. Since these comments were

solicited during the end of the project, the evaluator believes they are reflective of the organizing and strengthening activities. Some typical comments on the benefits of the AAIVE Project were:

-"Have made me a better teacher."

-"Organizing and strengthening activities were responsible for accelerating the development of my program."

-"Assistance for generating new ideas and approaches for instruction."

-"Curriculum materials purchased through the project."

-"Assisted in developing quality standards, personnel evaluation and course organization."

-"Increased visibility of my program in the state."

-"Opened communications with others involved in individualized instruction."

-"Project Director Faust as a resource person, helped to pull together instructional materials efficiently, a process that probably would have taken a considerable amount of time otherwise."

-"Gave me the skills to go into a vocational center and develop an individualized child care program as well as developing an action plan."

CAPACITY FOR SERVING MORE STUDENTS AND A WIDER VARIETY OF STUDENTS

Whether or not the AAIVE Project demonstrated that individualized instruction has the capacity for serving more students and a wider variety of students than traditional instructional approaches is extremely difficult to judge. The evaluator gave considerable thought on how to make a judgement on the success or failure of the AAIVE Project concerning this objective.

There are two major problems with this project objective. First, how does one define capacity? Secondly, how does one determine if a program is traditional? These are some of the questions the project director also discovered as the project evolved.

To assist in overcoming this obstacle it was decided to define capacity

as "the ability to contain, receive or accomodate learners." In this context, capacity to serve more vocational students means enrolling large numbers of students due to the individualized instructional techniques.

The answer to the question: "What is a traditional instructional approach?" may be found by analyzing instructional activities that are teacher-centered rather than student-centered. Rather than generate a lengthly list of activities that would be characteristic of a teacher centered or student centered program, a list that would most likely be open to debate, let it suffice to say that many programs contain elements of both.

Although it was impossible to locate similar subject matter programs for comparative purposes with the AAIVE test sites, without some method for determining whether a program was traditional or not, prevented a valid comparison. Additionally, there were many other variables that prevented any conclusive evidence from materializing.

Therefore, no hard data exists to support the notion that individualized instruction has the capacity to serve greater numbers of students as well as a wide variety of learners.

In absence of hard facts, the instructors of the test sites provided some evidence that perhaps signifies a tendency for a capacity to serve greater numbers of students but not a wider variety of students. When asked for their opinions regarding serving greater numbers of students as well as disadvantaged and handicapped learners, all instructors felt they could handle larger numbers of students.

The only reservation one instructor had was that each student needs some individual instruction and assistance. As classes become enlarged it becomes difficult to offer each person this assistance within the designated time-frame of classes.

The capacity for accomodating disadvantaged and handicapped learners presented another problem. The disadvantaged students appear to be able to be accomodated easier than the handicapped student. The child care instructors believed they could handle these students easily. The instructor in the electronics program believed it would be difficult to accomodate large numbers of handicapped learners because of a large time commitment tending their needs. The instructors of the welding program and the food trades program indicated they have not been exposed to special learners and therefore had no opinion as to whether they felt that their individualized programs had the capacity for accomodating these special learners effectively. It was interesting to note, however, that data on the enrollments of both the welding and food trades programs, (Table 1), showed that both programs were serving special populations. The test sites did not have sufficient conditions and a large enough population to experiment with the effects of individualized instruction on special learners.

Table 1

Enrollment Figures
for 1977-78

Project Programs	Average Students		Disadvantaged Students		Handicapped Students		Total* Students
	M	F	M	F	M	F	
Child Care	0	22	0	6	0	4	32
Electronics	36	1	4	0	1	0	42
Food Trades	4	14	7	0	7	1	33
Power Mechanics	29	1	7	0	5	0	42
Welding	20	0	10	0	0	0	30
Sub-totals:	89	38	28	6	13	5	
Enrollment totals:	127		34		18		179
Percentage of total:	71%		19%		10%		

*Classes have been merged together

A summary of enrollment data for the 1977-78 academic year is presented in Table 1. It can be seen that 29 percent of the total student population in the project are classified as special learners. Additionally, the percentage of disadvantaged and handicapped students parallels the national average.

Cost

There appears to be a higher cost for individualized instructional programs than non-individualized programs. All of the project instructors agreed that start-up costs are higher and that of on-going costs may be higher than non-individualized instructional programs. A consensus of the vocational administrators of each project site concure with the instructors regarding costs. How significant additional costs are in terms of a cost benefit or cost effectiveness analysis is not known.

ORGANIZATIONAL, PROGRAM AND TEACHER CHARACTERISTICS OF INDIVIDUALIZED INSTRUCTION

The identification of key organizational and program factors in each test site presented another complex evaluation problem. It was determined that the common denominator among all but one test site was that they had a variety of resource materials and instructional media within the instructional facility. In addition, they had well developed objectives, task analysis and relevant activities. One test site was in the process of building a special area within the facility to house various instructional media.

Facilities

Facility size varied among test sites. The child care program has 2100 square feet, the electronics - 1720 square feet, welding - 1600 square feet, and power mechanics - 1200 square feet. The food trades program did not

report its size, however, as a result of a visit to the food trades program, the evaluator would place it at approximately 1600 square feet. The wide variation in floor space does demonstrate that individualized programs in vocational education may be carried out in smaller types of instructional facilities. Two important factors did surface affecting individualized instruction and they are the physical arrangement of the facility and the operational management of the instructional environment. Obviously, the capacity for increased student numbers is directly related to facility area. It was also noted that none of the facilities had noticeable modifications for handicapped students. The capacity for serving a variety of students would be limited because of this.

Scheduling

The scheduling of students within each test site followed the particular schedule of their school. Within this framework, learners had considerable mobility in terms of class flexibility. The effects of several vocational individualized programs on scheduling, especially with on-going entry and exit privileges, has not been ascertained.

Attitudes towards Individualized Instruction

Positive attitudes towards individualized instruction by the administrators of vocational education at each test site seemed to emerge as a contributing force to the apparent success of each site. As a means of documenting this, an individualized instruction attitude scale developed at the Home Economics Center for Research in North Carolina (Johnson, Clawson, Griffin, 1976)* was administered during an interview with each vocational director or program

*Mildred B. Johnson, Barbara Clawson, Gwendolyn K. Griffin. An Assessment Procedure to Determine the Effectivenss of Individualized Instruction Approaches in Technical Institutes and Community Colleges in North Carolina. Home Economics Center for Research, University of North Carolina at Greensboro, 1976.

administrator. One administrator who was not available to take the attitude questionnaire was interviewed and in the opinion of the evaluator, knew little about the AAIVE Project and only general information regarding individualized instruction program within his facility. Another vocational administrator along with his program coordinator felt that the attitude scale was inappropriate because of their view that individualized instruction was just another instructional strategy and the statements on the attitude scale could be interpreted as having meaning to traditional instructional programs as well. The evaluator does judge these two individuals as highly knowledgeable and very supportive of individualized instruction when it is appropriate to a particular teacher's style.

Table 2 summarizes the results of the attitudes of the vocational administrators associated with the test sites towards individualized instruction. The attitudes of a sample of students who were involved in the test sites were also surveyed during student interviews. The results are presented in Table 3.

An analysis of the data reveals that as a group, administrators have a positive attitude towards individualized instruction. The attitude of student respondents reveals that they were generally supportive of individualized instruction.

Statements B1, B3 and B5 on the student attitude scale does suggest some uncertainty and differences among students.

Students and administrators disagree with one another on Item B3 which relates to emphasizing the process of learning at the expense of subject matter. Almost as many students were unsure as there were who agreed with the statements. This could also suggest that the test site instructors may be projecting what is interpreted as a predominate concern with processes rather than products by the students.

TABLE 2

Individualized Instruction Attitude
As Preceived by Vocational Administrators

(N=4)

Statement	Disagree	Not Sure	Agree
A. As compared to classes using traditional instructional approaches, students in individualized classes:			
1. Learn more		1	3
2. Engage in activities more likely to be meaningful to them			4
3. Are more likely to profit from mistakes	1	2	1
4. Have more opportunities to experience success		1	3
5. Are more highly motivated to learn		1	3
B. As compared to traditional instruction, individualized instruction:			
1. Is less likely to provide the common body of knowledge all students need to possess	3		1
2. Allows students more choice in what they learn	1	1	2
3. Emphasizes the processes of learning at the expense of subject matter.	2	1	1
4. Tends to lower educational standards for most students	3	1	1
5. Is not an appropriate technique to use for a wide variety of subjects	3		1
6. Places too much responsibility on students	3	1	

TABLE 3

Individualized Instruction Attitude
As Perceived by Students

(N=27)

Statement	Disagree	Not Sure	Agree
A. As compared to classes using traditional instructional approaches, students in individualized classes:			
1. Learn more	1	1	25
2. Engage in activities more likely to be meaningful to them			27
3. Are more likely to profit from mistakes		4	23
4. Have more opportunities to experience success		3	24
5. Are more highly motivated to learn	1	3	24
B. As compared to traditional instruction, individualized instruction:			
1. Is less likely to provide the common body of knowledge all students need to possess	15	4	8
2. Allows students more choice in what they learn		1	26
3. Emphasizes the processes of learning at the expense of subject matter	8	9	10
4. Tends to lower educational standards for most students	18	5	4
5. Is not an appropriate technique to use for a wide variety of subjects	11	7	9
6. Places too much responsibility on students	26		1

IDENTIFICATION SYSTEM

Significant teacher and instructional factors that may account for differences between instructors who design learning experiences on an individualized basis and those who design learning on a traditional basis is very difficult to isolate. Unfortunately, teaching is a very complex enterprise and this fact was continually reemphasized during the attempts of the project director to devise a model that would ultimately assist in determining those factors. After a considerable amount of research, an identification system was developed that provided a systematic approach for determining levels of individualized instruction.

The identification system purports to identify six levels of instructional programs ranging from teacher-centered programs on one end of a continuim to student-centered programs on the other. Each instructional level was qualified in terms of student, teacher, instructional content and environmental and media components. Various descriptive statements for each of the identified components were used to describe a particular instructional program. The isolation of these attributes could provide a basis for determining the particular level of any instructional programs scaled from a non-individualized to a fully individualized program.

The identification system underwent a rigorous refinement process that involved input from the New Hampshire Department of Education, Project Advisory Committee, Project Evaluator, Project participants and pilot trials at the Cheshire Vocational-Technical Center and at a statewide workshop in Vermont that included teacher representation from eleven vocational centers and four nursing schools. Following these refinements as a result of those validation procedures, the identification system was then forwarded to a panel of six judges who were identified as being curriculum specialists with expertise in individualized instructional programs

and strategies by Dr. Mary Marks, U.S.O.E. and Dr. Robert Taylor, Director of the National Center for Research in Vocational Education.

The resulting critiques of the identification system were analyzed by the project director and the project evaluator and additional refinements were made to the instrument. The project evaluator observed and assisted in the validation procedure and is convinced that the final program assessment instrument is as valid as can be expected at this time.

The final version of the identification system along with directions for its use are contained in a separate section of the handbook for individualized instruction and is most likely the best comprehensive classification system for identifying characteristics of instructional programs available.

DEMONSTRATION OF MODEL PROGRAMS

Opportunities for the Project participants to visit other instructional sites in their respective subject areas were extremely limited. It is difficult for high school teachers to obtain release time for these kinds of activities, especially as it seems, activities above and beyond their normal teaching sites.

Table 4 summarizes each project site's activities towards demonstrating and disseminating information concerning effectiveness of their individualized approaches to learning. Most of the activities for encouraging visits to the test sites were the results of scheduled presentations promoted by the project director at area educational meetings and special workshops on individualized instruction. More promotional activities by the project participants and especially their administrators may have been helpful.

The project director effectively utilized the project participants for presentations supporting individualized instruction in vocational education in New Hampshire. Presentations were made before the New

Hampshire Vocational Association, Cheshire Vocational-Technical Center and the Randolph Vocational Center located in the state of Vermont. The success of these presentations is well documented.

TABLE 4

SUMMARY OF VISITATIONS TO AND FROM PROJECT TEST SITES

Project Staff	Activities to promote visits to site	No. of Visits to program	Visits to other programs
Food Trades	None	None	None
Child Care	Several	3	None
Power Mechanics	Several	3	None
Welding	Several	None directly related to AAIVE activities	2
Electronics	No information	3	No information

INDIVIDUALIZED INSTRUCTION HANDBOOK

The individualized instruction handbook sought to provide information pertaining to the following four questions:

-What is individualized instruction?

-What are the program prerequisites to accomplish individualized instruction?

-What human and material resources can be found in the region to help develop individualized instruction?

-If further individualized instruction is desirable, how can I as a vocational instructor accomplish it?

Considerable time was devoted to searching and reviewing the literature on individualized instruction by the project director and his program assistant. Significant components of the handbook were written by vocational

personnel who could provide workable methods for implementing individualized instruction. The handbook underwent several revisions as a consequence of critiques by the project advisory committee and project participants. The final handbook was endorsed by all the project participants and advisors. The evaluator has reviewed the finished copy and is thoroughly satisfied with the accuracy of the material, handbook layout, and the helpful techniques it provides.

The dissemination plan for the handbook on individualizing instruction is quite extensive. The plan calls for 245 copies to be disseminated. Sixty-one percent of the handbooks are to be disseminated outside New Hampshire through the various curriculum networks and research dissemination units.

The in-state mailing list appears to be designed to achieve maximum visibility throughout the state. Copies of the handbook have been designated to be distributed from the Governor's Council on Education to classroom teachers.

COMMENDATIONS

The Evaluator commends:

- The Project Director and his Program Assistant for the well managed and responsive approach to all components of the project.

- Each site instructor for vigorously participating in the AAIVE Project even though it required a heavy commitment of time and enormous energies over and above their required professional duties.

- The Project Advisory Committee for their prompt attention to project matters.

- Each school and vocational administrator for assisting and allowing a test site in their school.

- Keene State College for providing a base of operation and back-up resources that complimented the project activities.

COMMENDATIONS AND CONCLUSIONS

I. Organizing and Strengthening

CONCLUSION: All model sites had a well defined, organized measurable approach to individualized learning. The organizing and strengthening activities were successful.

RECOMMENDATIONS:

1. Similar projects may want to consider using non-exemplary types of programs as test-sites.

2. Test-sites used should be compatible to one another and not include "special programs" unless they have been specifically addressed as significant to the project.

3. Contracts be used for all activities agreed upon by all parties and that renumeration be based upon agreed levels of completion.

II. Capacity for Serving More and Varied Students

CONCLUSION: No definitive conclusions have been drawn. Data does suggest that individualized instruction may provide a means by which greater numbers of students may be accomodated, provided that facility size and hard and software materials are adequate. The capacity for accomodating the disadvantaged learner appears to be easier than for the handicapped learner.

RECOMMENDATIONS:

1. Additional research should be done to determine potential class limits for individualized programs.

2. Additional research should be considered for determining the effectiveness of individualized instruction on students in classes with a large mix of average, disadvantaged and handicapped learners.

3. A comparative study of individualized instruction and non-individualized programs in terms of demonstrated competencies would be valuable.

III. Organizational and program characteristics

CONCLUSIONS:

Characteristics of individualized instruction as viewed from the prospective of facilities, has not provided any definative answer to the limits of facility size and design characteristics. There is evidence that suggests that individualized programs are more costly. Whether this increase is significant in terms of cost-benefits is not clear. Material needed for individualized instruction are critical and the proper balance of audio-visual materials is signficiant. It is also concluded that teachers of individualized instruction programs need good management, curriculum development skills, learning theories

CONCLUSIONS: (Continued)

skills, and techniques for working with special learners.

RECOMMENDATIONS:

1. Research be undertaken to determine the most efficient facility design for various individualized programs.

2. Additional research on the economic evaluation of individualized instruction may be worthy of consideration.

3. Instructional material utilized, need to be targeted towards a wide range of potential users.

4. Teachers interested in individualized instruction should be thoroughly prepared in classroom management techniques, curriculum design for individualized instruction, contemporary learning theories, and techniques of working with special needs learners.

IV. Identification System

CONCLUSION:

A model for identifying characteristics of individualized instructional programs has been developed. The field testing of the identification system has been consistent with proper research methodology and is considered a significant outgrowth of the AAIVE Project.

RECOMMENDATIONS:

1. Additional field testing be done on the identification system.

2. Additional research be directed towards identifying those extraneous variables that may effect the identification system's content validity.

V. Demonstration of model programs

CONCLUSION: Promotional activities concerning the AAIVE test sites was actively pursued by the project director. Less promotional activities by the instructors and vocational administrators of the test sites was observed.

RECOMMENDATIONS:

1. An active promotional campaign should be adopted at all levels in future projects of this type in order to insure maximum visibility.

VI. Individualized instruction handbook

CONCLUSION: This objective has been accomplished. The design, layout and material contained within the handbook are presented very clearly and are practical. The dissemination plan has addressed the question of obtaining maximum exposure of the handbook in New Hampshire and the entire country.

RECOMMENDATIONS:

1. The handbook should be considered as a major resource in teaching in-service and pre-service causes on designing and teaching individualized instruction programs.

2. The words "New Hampshire" could be eliminated from the title of the handbook. The handbook has national implications.

GENERAL RECOMMENDATIONS

1. Projects of this nature be continued. Other states could use the AAIVE Project as a model.

2. The organizing and strengthening activities are designed to compliment articulation efforts for both post-secondary and secondary educational programs.

3. That vocational teacher certification programs, teacher education programs and in-service program activities promote methods for individualizing vocational programs.

4. The identification system coupled with the Handbook for Individualized Instruction for New Hampshire Vocational Educators be considered as an excellent source for individualizing any program.